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appreciation of his work and of its deep admiration of his personal character.

Committee { REID HUNT
GEORGE B. WALLACE
A. N. RICHARDS "

HYGIENIC LABORATORY,

REID HUNT,
Secretary

SOCIETIES AND ACADEMIES

THE BIOLOGICAL SOCIETY OF WASHINGTON

THE 477th regular meeting of the society was held January 6, 1911, with President David White in the chair and fifty-one persons present.

Two new members were elected and standing committees announced by the president.

Barton W. Evermann reported observations on the fly-catching habits of the common brown rat.

C. D. Marsh called attention to a report by Sars on crustacea from Lake Tanganyika, and stated that the list, so far as copepods are concerned, fails to bear out the theory that this lake is of very ancient origin.

The following communications were presented:

Notes on the Aspens: I. TIDESTROM.

The speaker gave the history and relationship of several American and European forms of the genus *Populus*. He showed that the western quaking aspen differs in several particulars from the eastern, and proposed a new name for the western form. A number of herbarium specimens illustrated the remarks.

Some Nesting Habits of Water Ousels and Cuckoos: NED DEARBORN.

The remarks were illustrated by photographs of the birds and nests. The observations on the water ousel were made in Spearfish Canyon, S. D., and in Santa Fe Canyon, N. M., during last summer; those on the black-billed and yellow-billed cuckoos were made at Joliet, Ill., in 1906.

A Recently Imported Enemy of Alfalfa: F. M. WEBSTER.

The alfalfa or lucern weevil (*Phytonomus murinus*) was introduced into this country, probably in the packing or in packages of articles of international commerce, some time prior to 1904, when it was first discovered by the entomologists of the Utah Agricultural Experiment Station attacking a small field of alfalfa in the vicinity of Salt Lake City, Utah. From this point it has since that time spread over the country northward to near Ogden and southward to beyond Provo and from a considerable distance westward of Tooele, very nearly to the borders of Wyoming.

The eggs are deposited chiefly in punctures made in the young stems by the adult beetles; the larvæ, as soon as they hatch, make their way to the tender growing crowns of the plants, feeding upon the unfolding leaves and tender stems, and thus prevent growth of the young plants. Later on in the season, after the insects have reached the adult stage, these still attack the alfalfa plants by gnawing the bark from the stem, thus destroying them.

In many alfalfa fields about Salt Lake, at the time for mowing the first crop of hay, the plants had not made sufficient growth to admit of mowing; while the second crop was seriously damaged by the feeding of the adult beetles as just described. Approximately, damage to the amount of a half million dollars was caused during the last year by this pest in Utah.

No thoroughly practical measures have been found for preventing the spread of the pest or very materially reducing the results of its depredations.

The habit of the adults in hiding away in baled hay, in fruit packages, or almost any other similar articles of commerce, as well as their attaching themselves to freight cars and hiding themselves in the vestibules of Pullman sleeping cars, makes their diffusion by railways almost unpreventable. Twenty-seven individuals were taken from the vestibule of one sleeping car attached to a train at Salt Lake City last July. Also, the adult insects fly about freely during the summer and being carried by the winds are also in this manner widely diffused.

The present indications are that the insect will make its appearance in southern Idaho, southern Wyoming and eastern Nevada the coming spring. Fortunately, alfalfa does not enter into international commerce as does cotton; therefore this insect is not likely to affect articles of international commerce. But over the western country, where it seems likely to diffuse itself and carry on its destructive work, there is much territory where alfalfa is the only crop that can be raised, and if this is destroyed the farmers will be placed in sore straits and confronted with a more serious problem than is brought about by any other insect known to occur in this country. Over a good portion of the country west of the one hundredth meridian alfalfa is the money crop of the farmers, and any influence tending to prevent or interfere with the cultivation of this, will constitute a calamity throughout that country.

The insect has no natural enemies excepting frogs and toads. Birds do not appear to relish them. No insect enemies are known, or have yet been discovered; and fungus diseases that attack similar larvæ in the east have failed to become established when introduced from the eastern part of the country.

D. E. LANTZ,
Secretary

THE HELMINTHOLOGICAL SOCIETY OF WASHINGTON

THE first meeting of the society was held in the rooms of the zoological division of the Public Health and Marine Hospital Service on October 8, 1910, Dr. Stiles acting as host, Dr. Garrison as chairman. Mr. Hall was elected secretary for the year.

Dr. Pfender noted the publication of a recent article recording the finding of *Necator americanus* in New Guinea for the first time.

Dr. Garrison exhibited specimens of *Davainea madagascariensis* from man and read a paper, to be published in the *Philippine Journal of Science*, dealing with the case and describing the specimens. The material, consisting of one complete and four incomplete and headless specimens, was collected from an adult male native in the Philippines. It is the first case from this locality and the tenth recorded case. This case indicates a more or less general distribution of the parasite throughout the tropics. Cases occur in children and adults and the lack of records from any host save man since the parasite was first found in 1867 indicates that man is the normal host. So far the parasite has been recorded only from coast regions, but this may be due to inadequate investigation in the interior. Dr. Garrison's description of the anatomy was illustrated by photographs.

Dr. Stiles gave a talk on the International Zoological Congress at Gratz. He discussed the newly elected international committee on medical zoology and noted the following plans which the committee had taken up: the agreement on national repositories for collections dealing with medical zoology and for the deposition of type material; a working agreement between this committee and the Commission on Zoological Nomenclature to determine and fix upon the correct names of the parasites of man and later of those of domesticated and the more important wild animals; the securing of material from the various groups for the use of specialists; the location of existing collections and especially type specimens; the securing of better recognition of zool-

ogy in medical schools where work in tropical medicine is done, and the issuing of a model syllabus for such a zoological course; the collection of methods of technique; and the selection of corresponding members with a view to promoting harmony and cooperation and avoiding dissension and unwarranted criticism in zoological circles.

THE second regular meeting of the society was held in the rooms of the zoological division of the Hygienic Laboratory, December 1, 1910, Dr. Stiles acting as host, Dr. Ransom as chairman.

Dr. Stiles presented an abstract of an unpublished paper on rural sanitation, with special reference to the disposal of fæces. A proper disposal of fæces is the greatest single factor in combating zoo-parasitic diseases. Where the installation of a sewer system is not feasible, the dry disposal method has been considered the best. In this the fæces are covered with dirt or lime. The system depends on the cooperation of all of the members of the community for its success, and this fact constitutes one of the greatest objections to it. Children and the majority of the southern negroes can not be depended on to cooperate. The unsatisfactory character of this system being evident, efforts have been made to devise a satisfactory wet system. Many tests had given unsatisfactory results, but the wet system devised and described by Lumsden, Roberts and Stiles seems to have overcome the final objections. The paper dealt also with the objections to the dry system as they had been worked out at Wilmington, N. C. Some of the findings were as follows: (1) The sand under and around dry system privies is not safe five months after the last use of the privy. Sand which had been dried out twice showed two encysted larvæ on the one hundred and fifty-first day. Life was not demonstrated by movement, but the specimens were histologically perfect and could not have been dead more than a day or two if they were dead. (2) After four months the infection may be greatly reduced and in some cases perhaps entirely eliminated. (3) After five months in sand, and after drying out twice, live *Ascaris* eggs may be found after all the hookworm eggs and embryos have perished. *Ascaris* eggs were found apparently alive after 156 days. (4) Hookworm eggs were identifiable after 151 days. (5) When faecal material is subjected to water decomposition for 70 days, most of the hookworm eggs die, but some are still alive. (6) No hookworm eggs were found alive after about four to five months in fæces and water. (7) It is probable

that hookworm eggs perish in three months in faecal material in water. If this is proved, then the effluent from the L.R.S. barrel privy should be stored three months before using as fertilizer. The use of faeces as fertilizer is receiving especial attention for the reason that the commercial argument carries more weight with some people than does the idea of protection to human life and health. (8) In faeces decomposing in water, 80 per cent. of the *Ascaris* eggs are dead in four or five months, but some are still alive, thus outlasting the hookworm. (9) Chloride of lime in the proportion of a quarter pound to about ten quarts of water does not kill hookworm eggs in 22 to 40 hours. After four days the eggs are still microscopically normal.

Flies feed and breed in the dry system. In one place about 80 privies were examined. Although lime was furnished free, it was only used generously in three cases, and flies were breeding in these places as in the others. The faeces are collected in wagons and buried; burial under a foot of soil being recommended. The carts carry and distribute flies. Experiments showed that flies developed and crawled up to the surface from fly-blown faeces buried under six and a half inches of sand; they came through 17 inches in 24 hours; and flies issued after burial under 48 inches of sand. Flies were obtained even after burial under six feet of sand. In the last two cases, the sand used was not sterilized but was pure sand carefully selected. These are final arguments against the dry system.

The system favors the sporulation of amebæ. Flies can bring to the surface and distribute amebæ spores or typhoid bacilli. Under some circumstances privies may be more important than the manure piles as breeding places for flies.

Dr. Stiles presented a note on spurious parasitism. Small oligochaetes were sent in from three different states in three cases recently, with the claim that they were passed in the urine. These are assumed provisionally to be cases of contamination. In one case, however, it was claimed that they were passed in the presence of a physician and into a clean receptacle. A specimen of a small snake, identified by Dr. Stejneger as *Storeria dekayi*, was exhibited. This specimen was sent in from Pennsylvania with the claim that it had been passed from the bowels.

Dr. Cobb presented a note on the abundance of free-living nematodes in the soil. The number per acre amounts to thousands of millions. Reckoning the average length at one and one half

millimeters, a modest estimate, the nematodes in one acre would extend from Washington to Chicago if placed end to end. One genus feeds almost exclusively on diatoms.

Dr. Garrison brought up the question as to the desirability of designating certain tropical stations as repositories for zoological material connected with the study of tropical medicine. Dr. Stiles stated that the international commission hoped to take up that subject in the not too distant future.

Dr. Ransom gave a brief summary of a paper entitled "The Nematodes Parasitic in the Alimentary Tract of Cattle, Sheep and other Ruminants," to be published as a bulletin of the Bureau of Animal Industry. The paper describes 50 species, at least 30 of which occur in the United States, the species described representing 18 genera belonging in the five families Ascaridæ, Strongylidæ, Filariidæ, Angiostomidæ and Trichinellidæ. The Strongylidæ are divided into the subfamilies Strongylinae and Metastrongylinae, and the Trichinellidæ are divided into two new subfamilies. Railliet's rejection of the subfamily Strongylinae, following the application of the generic name *Strongylus* to the so-called sclerosomes, and his substitution of the name *Ankylostominae* was noted. A *Strongyloides* from the prong-horn antelope was noted as of particular interest. Members of the Angiostomidæ, to which this genus belongs, are characterized by a life cycle including two generations, one of free-living males and females, and another of parasitic hermaphroditic or parthenogenetic forms. In the species in question the parasitic adult molts repeatedly, and the eggs as passed lodge under the old cuticle and are carried away in the old skin when it is shed. It was noted that *Strongyloides longus* of the sheep is certainly identical with Wedl's *Trichosoma papillosum*. Two new species of *Capillaria* are described in the paper.

Mr. Hall gave a summary of a paper entitled "A Comparative Study of Methods of Examining Faeces for Evidences of Parasitism," to be published as a bulletin of the Bureau of Animal Industry. The paper gave the various methods used in examining faeces and indicated the application and limitation of each method on the basis of comparative studies. A new modification of technique which had been found more efficient than other methods was then demonstrated in the laboratory.

MAURICE C. HALL,
Secretary